



Department of Biology Course Outline

SC/BIOL 4305 3.00 - Winter 2024

Controversies in the Modern Life Sciences

Course Description

The study of past and contemporary controversies in genetics, evolutionary theory and ecology. The focus is on analyzing the diverse aims, concepts, theories, techniques and institutional strategies which have shaped the development of modern biology.

This course is designed to give students the skills to analyze controversies at the interface of the life sciences and society. Emphasis is placed on study of the methods, theory, as well as socio-political and ethical issues underlying such controversies. Students will become practiced in library searches, critical reading and writing, PowerPoint presentations, and in working in groups.

Prerequisites

SC/BIOL 2040 3.00

Course Instructor and Contact Information

Course Director: Dr. Kyle Belozerov
CB216 (Chemistry Building, Keele campus)
vbelozer@yorku.ca

Student Hours: By appointment

Schedule

Lectures: Tuesdays, 2:30 pm – 5:30 pm, CB129 (Chemistry Building)

Please note that this course is delivered fully in-person, and most class activities and evaluations require the students to be physically present during class time. Therefore, arriving on time and attending class regularly are important.

Evaluation

Class Participation	10%	Earned throughout the semester
Mini-quizzes	40%	Four quizzes, 10% each, will take place in the beginning of class on Jan 23, Feb 13, Mar 12, and Apr 2
Presentation	30%	The date of your presentation will be scheduled during the first week of the semester
Peer-reviewed writing assignments	20%	Two assignments due on Feb 11 and Mar 24

Additional details about evaluation components. Please read carefully!

1) This course is largely based on in-class student presentations, discussions, and debates. Therefore, class attendance is required. Each student will earn “class participation” credit during each class by submitting a paper card at the end of the class. This credit will be based on engaging in class discussions by asking and/or answering questions and providing comments. Up to two classes may be missed with no penalty, to accommodate for possible illnesses and other unforeseen circumstances. Therefore, a student would need to attend and participate in a minimum of 10 out of 12 classes to earn full participation credit.

2) Mini-quizzes will be short (15-20 min), mostly or completely multiple-choice tests that will contain questions on the topics discussed in the previous 2-3 classes. Mini-quizzes will take place in the beginning of each class starting at 2:30 pm. If a student misses a mini-quiz, a make-up quiz will be offered after the last day of the semester, during the final exams period. Please note that a completely different set of questions covering the same topics will be included in the make-up quiz.

3) For presentations, students will be placed in groups of 5, and each group will be assigned to a controversial topic. Each student will deliver a 20-25 min presentation, including a guided class discussion, on a specific topic within the assigned controversy. The instructor will evaluate each presentation and award a grade based on the rubric (posted on eClass). All presentations will be scheduled during the first week of classes (Jan 8 – Jan 12). Student presentations will begin on Jan 23, and continue for the remainder of the semester.

4) Peer-reviewed writing assignments will be one-page graphic summaries of a chosen controversial topic selected from the list of topics discussed in class. The details of the assignment format will be posted on eClass. Each submitted assignment will be anonymously marked by three peer reviewers (students from the class) using a defined rubric. Thus, each student in the class will receive three anonymous reviews of their own work, and will serve as a reviewer for three anonymous assignments submitted by other students. The grade for the assignment will consist of the averaged mark from the reviewers (70% contribution to the total) and your completion of the three reviews of others’ work (10% for each completed review).

Important Dates

Classes start:	January 8
Reading Week:	February 17 – 23
Drop Deadline:	March 11 (Last day to drop the course without receiving a grade)
Course withdrawal:	March 12 – April 8 (Course still appears on transcript as “W”, but no grade is recorded)
End of classes:	April 8 (Monday, April 8, is the make-up date for Friday, March 29)
Exams period:	April 10 - 26

For additional important dates such as holidays, refer to the [“Important Dates”](#) section of the Registrar’s Website.

Resources

1. eClass course site:

All lecture slides and other relevant material will be posted on eClass as the course proceeds. Announcements, grades, and other course information are communicated through the course eClass site.

No textbook will be used in the course.

Learning Goals & Outcomes

Upon completion of the course, each student should be able to:

- State and explain key controversies in the modern life sciences
- Articulate the arguments used on both sides of the debated issues
- Make an informed and substantiated statement in support of a particular viewpoint
- Engage in a fact-based discussion of controversial topics

Students are introduced to social and political issues often underlying biological controversies at the interface of biology and society and the processes by which controversies may open and close. Students become practiced in literature searches, critical reading and writing, PowerPoint presentations, working independently and in groups.

Course Content and Schedule

Class #	Date	Student presentations	Topic
Class 1	Jan 9		Course Introduction
Class 2	Jan 16		GMO's and their impact on humans and the environment
Class 3	Jan 23	1	Human and animal cloning
Class 4	Jan 30	2	Genetically engineering humans
Class 5	Feb 6	3	6 th mass extinction
Class 6	Feb 13	4	Causes of Neanderthal extinction
Class 7	Feb 27	5	Is there extraterrestrial life in the universe?
Class 8	Mar 5	6	Animal de-extinction plans and their implications
Class 9	Mar 12	7	1) Are vaccines safe? 2) Origins of Covid-19
Class 10	Mar 19	8	Microplastics and other common pollutants and human health
Class 11	Mar 26	9	Genetic testing and modern society
Class 12	Apr 2	10	Evolution vs. Intelligent Design

Experiential Education and E-Learning

- Course materials available on eClass
- Peer-review activities
- Individual presentations

Course Policies

1. E-MAIL ETIQUETTE:

- Use your Yorku email address as other email addresses (e.g., Hotmail) are filtered out by the university's email system and do not always reach their intended recipient. **Please do not use the Moodle email function or respond to course announcement emails.**
- I will try to respond within 2 business days, but this is not always possible. I typically do not check email between 5 pm and 9 am, nor on the weekends.
- **Subject line:** your name, student number and a brief indication of topic (*e.g.*, 'Question regarding gene regulation). I receive a lot of email and this practice helps me sort emails efficiently. **Emails without the required information will not receive a response.**
- **Please include your NAME at the end of each email.**
- I may not be able to offer individual tutoring by e-mail. **If your question requires me to type up several paragraphs to essentially repeat what was discussed in class, I may not be able to respond.** Please attend classes regularly and take careful notes during lectures. If you need extra help, please consider attending my office hours.

2. MISSED TESTS: Please see important notes under "Evaluation".

3. RE-MARKING REQUESTS:

- If you believe a written answer on a test was marked incorrectly you must submit a written rationale detailing the suspected error through eClass (instructions to be given at a later date) within 1 week of receiving a Crowdmark link to your marked paper. I will aim to address all re-marking requests within 1-2 weeks of receiving them.
- **NOTE: re-marking can result in the mark being raised, confirmed, or lowered.**
- To be fair and consistent with regards to the entire class, **individual grades are NOT negotiable.** We cannot provide 'extra credit' assignments. **Marks for assignments and tests are not 'rounded' or 'bell-curved'.** Contact me (vbelozer@yorku.ca) about marks **ONLY if there is a clear error in your mark (calculation, clerical, etc.) within ONE (1) week of the test score being made available to you.** It is highly unlikely that you will receive a response regarding any other mark-related queries.

4. YORK'S GRADING SCHEME

Letter	Point Value	Percentage	Definition
A+	9	90-100	Exceptional
A	8	80-89	Excellent
B+	7	75-79	Very Good
B	6	70-74	Good
C+	5	65-69	Competent
C	4	60-64	Fairly Competent
D+	3	55-59	Passing
D	2	50-54	Barely Passing
E	1	40-49	Marginally Failing
F	0	0-39	Failing

5. IMPORTANT COURSE INFORMATION FOR STUDENTS

All students are expected to familiarize themselves with the following information, available on the Senate Committee on Academic Standards, Curriculum & Pedagogy web page (see Reports, Initiatives, Documents) - <http://www.yorku.ca/secretariat/senate/committees/ascp/index-ascp.html>

- Ethics Review Process for research involving human participants:
<http://www.glendon.yorku.ca/research/obtain-ethics-approval/>
- Accommodation for students with disabilities:
<http://www.glendon.yorku.ca/academic-services/exams/alternate-accommodation-for-tudents-with-disabilities/>
- Student Rights and Responsibilities: <http://oscr.students.yorku.ca/csrr>
- Religious Observance Accommodation:
<http://www.glendon.yorku.ca/academic-services/exams/religious-accommodation/>
- **6. ACADEMIC HONESTY:** Numerous students in Faculty of Science courses have been charged with academic misconduct when materials they uploaded to third party repository sites (e.g. Course Hero, One Class, etc.) were taken and used by unknown students in later offerings of the course. The Faculty's Committee on Examinations and Academic Standards (CEAS) found in these cases that the burden of proof in a charge of aiding and abetting had been met, since the uploading students had been found in all cases to be wilfully blind to the reasonable likelihood of supporting plagiarism in this manner. Accordingly, to avoid this risk, students are urged not to upload their work to these sites. **Whenever a student submits work obtained through Course Hero or One Class, the submitting student will be charged with plagiarism and the uploading student will be charged with aiding and abetting.** Note also that exams, tests, and other assignments are the copyrighted works of the professor assigning them, whether copyright is overtly claimed or not (i.e. whether the © is used or not). Scanning these documents constitutes copying, which is a breach of Canadian copyright law, and the breach is aggravated when scans are shared or uploaded to third party repository sites.
- **Course Policy on Generative Artificial Intelligence (AI tools)**
Generative artificial intelligence (AI) tools have quickly become ubiquitous in internet research. In this course, we have no assignments that directly engage with AI and students are NOT REQUIRED to use AI tools for any of the course assignments. The use of AI tools is strictly prohibited in the use of exams. However, students are not restricted from using AI tools for assignments and discussion posts in this course so long as the following two conditions are met:
 1. While generative artificial intelligence (AI) – specifically, ChatGPT or Bing chatbot – can be used in the completion of written assignments and contributions to the online discussions, it will be used with the expectation that you use the AI tool to think with you, but not for you. AI tools are primarily developed for “natural language modelling” (speculating on how to put sentences

together) and not for specialized research and analysis. Their knowledge base is derived from the indiscriminate scraping of random sites on the internet. None of the information provided is vetted or cited. Often AI tools produce erroneous or overly generalized knowledge, even though they are improving all the time. This means it is risky for students to use them in assignments. The AI tool may give you a place to start your research or point you in new directions, but usually they will not be sufficient to successfully complete an assignment. If you use another generative AI tool beyond ChatGPT and Bing, it will be considered an unauthorized use, and as a result, you will be violating the Senate Policy on Academic Honesty.

2. The use of generative AI should be documented and cited. In the discussion forums, simply put in brackets after your answer "(this answer [or parts of this answer] were generated by ChatGPT [or Bing])". Credit the AI whenever you use the tool to generate text used in your assignment. Here is an example of how to cite in a footnote ChatGPT in the Chicago Style: · Text generated by ChatGPT, March 7, 2023, OpenAI, <https://chat.openai.com/chat>.

ChatGPT, response to "Explain how to make pizza dough from common household ingredients," March 7, 2023, OpenAI.

Use of generative AI outside these two conditions will constitute academic dishonesty under York University's Senate Policy on Academic Honesty. As a student in this course, it is your responsibility to understand when and how generative AI tools can be used to complete your assessments and activities. If you do not know whether an online resource or tool can be used in this course, please contact your instructor for guidance.

Note on evaluation for assignments using AI: When evaluating your work with generative AI, **I will be assessing the quality of your critical reflections and original contributions in accordance with York University's description of grades and grading schemes.**

- **RECORDING LECTURES:** Students are allowed to record lectures using their own voice recording devices. However, taking pictures or video recording of exam questions discussed in class will **NOT** be allowed. **Lecture recordings, slides, assignments and test questions are the intellectual property of the course instructor and CANNOT be uploaded or distributed to any third-party sites (see above section regarding ACADEMIC HONESTY. THIS STATEMENT APPLIES TO BOTH REMOTE & FACE-TO-FACE LECTURES.**
- **E-MAIL ETIQUETTE:** Use your Yorku email address as other email addresses (e.g., Hotmail, Gmail) are filtered out by the university's email system and do not always reach their intended recipient. **Please DO NOT use the Moodle email function or respond to course announcement emails.** I will try to respond within 1 business day, but this is not always possible. I typically do not check email between 6 pm and 9 am, nor on the weekends.

Subject line: your name, student number and a brief indication of topic (e.g., 'Question regarding genetics'). **Emails without the required information will not receive a response. Please include your NAME at the end of each email.** I will not be able to offer individual tutoring by email. **If your question requires me to type up several paragraphs to essentially repeat what was**

posted, I may not be able to respond. Please attend class, listen to the lecture recordings and take good notes.

7. FAMILY-FRIENDLY ENVIRONMENT IN THE CLASSROOM:

- For older children and babies, I understand that minor illnesses and unforeseen disruptions in childcare often put parents in the position of having to choose between missing class to stay home with a child and leaving him or her with someone you or the child does not feel comfortable with. While this is not meant to be a long-term childcare solution, occasionally bringing a child to class in order to cover gaps in care is perfectly acceptable.
- I ask that all students work with me to create a welcoming environment that is respectful of all forms of diversity, including diversity in parenting status.
- In all cases where babies and children come to class, I ask that you sit close to the door so that if your little one needs special attention and is disrupting learning for other students, you may step outside until their need has been met. Non-parents in the class, please reserve seats near the door for your parenting classmates.
- Finally, I understand that often the largest barrier to completing your coursework once you become a parent is the tiredness many parents feel in the evening once children have finally gone to sleep. The struggles of balancing school, childcare and often another job are exhausting! I hope that you will feel comfortable disclosing your student-parent status to me. This is the first step in my being able to accommodate any special needs that arise. While I maintain the same high expectations for all student in my classes regardless of parenting status, I am happy to problem solve with you in a way that makes you feel supported as you strive for school-parenting balance. Thank you for the diversity you bring to our classroom!

University Policies

ACADEMIC HONESTY & INTEGRITY

York students are required to maintain the highest standards of academic honesty and they are subject to the Senate Policy on Academic Honesty <https://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/>. The Policy affirms the responsibility of faculty members to foster acceptable standards of academic conduct and of the student to abide by such standards.

There is also an academic integrity website with comprehensive information about academic honesty and how to find resources at York to help improve students' research and writing skills, and cope with University life. Students are expected to review the materials on the Academic Integrity website at <https://spark.library.yorku.ca/academic-integrity-what-is-academic-integrity/>

Artificial Intelligence (AI) Apps

According to York's Senate Policy on Academic Honesty, using AI apps such as such as ChatGPT, GPT-3, DALL-E, among others to complete academic work without your instructor's knowledge or permission, is considered to be a breach of academic honesty. More specifically, using text-generating tools (such as ChatGPT) would be considered to be cheating (Senate

Policy, section 2.1.1) and using imagegenerating tools (such as DALL-E) would be considered to be plagiarism (Senate Policy, section 2.1.3). You may find that certain instructors will allow the use of these tools for certain assessments, yet others will not allow their use. If you're not sure whether using an AI app for your academic work is acceptable, it is recommended that you:

- Carefully review the guidelines for your assessments
- Check for any messages from your instructor on eClass
- Ask your instructor or TA if they are permitting the use of these tools

Additionally, you are encouraged to keep all of your research notes and draft versions of your work. You may be asked to present these if it is suspected that an AI app was used to help complete your work. These drafts can be used to show how this work developed, and to provide evidence that the work is your own.

Group Messaging Tools

Group messaging platforms, such as Discord or WhatsApp, can be helpful tools that connect students and support learning. However, such tools can lead to academic honesty violations when students share or use answers to homework tasks, quizzes, tests, or exams, or when students collaborate on individual assignments. According to York's Senate Policy on Academic Honesty these behaviours may lead to a penalty. Moderators of these groups are required to clearly communicate the group's purpose and to remind students of the expectations for academic honesty. Being a member of such a group is not a breach of academic honesty or any other university policy. However, if you witness academically dishonest behaviour, it is strongly recommended that you leave the group. If you are unsure whether the behaviour is a violation of academic honesty, check with your TA or instructor. For detailed information about expectations for academic honesty, please refer to York's Senate Policy

on Academic Honesty.

Homework Help Sites

According to homework sites (such as Chegg), their services are intended to support students' understanding of course material. Despite this, cheating occurs on tests and exams when students post their test or exam questions to these sites during the assessment in order to obtain answers from one of their experts. Using the answers provided is a breach of academic honesty, according to York's Senate Policy on Academic Honesty. If you're struggling with course material, understanding expectations, or in any other way, reach out to your instructor or TA instead of relying on homework help sites to acquire assessment answers. For authorized resources and sources of help at York, please visit:

<https://www.yorku.ca/unit/vpacad/academic-integrity/student-resources/>.

Contract Cheating

Contract cheating occurs when a third party completes a student's work, and the student then submits that work as their own. Third parties can include: freelance academic writers or tutors,

online essay writing companies, friends, classmates, or even family members. Contract cheating is considered to be a serious type of academic dishonesty that carries severe penalties. Besides penalties imposed by the university, contracting a third party to complete academic work carries the additional risks of identity theft and blackmail. If you are unsure whether a certain resource is a legitimate source of help, check with your TA or instructor. For authorized resources and sources of help at York, please visit: <https://www.yorku.ca/unit/vpacad/academic-integrity/student-resources/>. As well, for detailed information about expectations for academic honesty, please refer to York's Senate Policy on Academic Honesty.

Unauthorized Collaboration

Unauthorized collaboration occurs when students work together on assessments without their instructor's permission. This can include working together to solve homework problems, comparing their homework, test or exam answers, collaborating to complete assignments, or having someone else write or revise an assignment. Sometimes collaborating on assessments with other students is acceptable, yet at other times, individual effort is required. This can vary by course, instructor, or assessment. Even when it comes to group assignments, individual work may be required at different stages. If you are unsure whether collaborating on assigned work is permitted or the extent of collaboration that is acceptable, review the instructions for that assessment, and/or ask your instructor or TA. Note: even if collaboration on an assessment is permitted, it is never acceptable to copy someone else's work or allow them to copy yours.

Plagiarism

Plagiarism is defined as misusing another person's published or unpublished work by presenting their ideas, writing or other intellectual property as one's own without proper acknowledgement (Senate Policy on Academic Honesty, section 2.1.3.). There are a number of acts that are considered to be plagiarism, for example:

- copying content word-for-word from a source without proper citation;
- paraphrasing from a source without proper citation; submitting work you have already submitted for another course without the instructor's approval;
- rewording someone else's work which you submit as your own;
- having a third party complete work in whole then submitting it as one's own (also known as contract cheating).

Although plagiarism is often thought to involve words and ideas, it can also involve drawings, paintings, photographs, programming code, statistics, presentations, musical scores, among other types of content. Even if the act of plagiarism was unintentional, you can still receive a penalty. To avoid plagiarism, keep good track of any outside sources you use, and ensure that you cite sources properly. For more help on how to avoid plagiarism, contact the Library, Writing Centre, or your instructor or TA.

Access/Disability

York University is committed to principles of respect, inclusion and equality of all persons with disabilities across campus. The University provides services for students with disabilities (including physical, medical, learning and psychiatric disabilities) needing accommodation related to teaching and evaluation methods/materials. These services are made available to students in all Faculties and programs at York University.

Students in need of these services are asked to register with disability services as early as possible to ensure that appropriate academic accommodation can be provided with advance notice. You are encouraged to schedule a time early in the term to meet with each professor to discuss your accommodation needs. Please note that registering with disabilities services and discussing your needs with your professors is necessary to avoid any impediment to receiving the necessary academic accommodations to meet your needs.

Additional information is available at the following websites:

Counselling & Disability Services at Glendon

<https://www.glendon.yorku.ca/counselling/disability/>

Accessibility services at Glendon <https://www.yorku.ca/glendon/supports-and-services/glendon-accessibility-services/>

Counselling & Disability Services <https://accessibility.students.yorku.ca/>

York Accessibility Hub <https://accessibilityhub.info.yorku.ca/>

***Please note that it is the student's responsibility to Register with Glendon Accessibility Services <https://www.yorku.ca/glendon/current-students/alternate-exams/> AND to arrange an appointment with the Alternate Test/Exam Scheduling center THREE WEEKS prior to the test/exam date.**

Ethics Review Process

York students are subject to the York University *Policy for the Ethics Review Process for Research Involving Human Participants*. In particular, students proposing to undertake research involving human participants (e.g., interviewing the director of a company or government agency, having students complete a questionnaire, etc.) are required to submit an *Application for Ethical Approval of Research Involving Human Participants* at least one month before you plan to begin the research. If you are in doubt as to whether this requirement applies to you, contact your Course Director immediately.

Religious Observance Accommodation

York University is committed to respecting the religious beliefs and practices of all members of the community, and making accommodations for observances of special significance to adherents <https://registrar.yorku.ca/enrol/dates/religious-accommodation-resource-2023-2024>

Should any of the dates specified in this syllabus for an in-class test or examination pose such a conflict for you, contact the Course Director within the first three weeks of class. Similarly,

should an assignment to be completed in a lab, practicum placement, workshop, etc., scheduled later in the term pose such a conflict, contact the Course director immediately. Please note that to arrange an alternative date or time for an examination scheduled in the formal examination periods (December and April/May), students must complete an Examination Accommodation Form, which can be obtained from Student Client Services, Student Services Centre or online at <https://secure.students.yorku.ca/pdf/religious-accommodation-agreement-final-examinations.pdf>

Student Conduct in Academic Situations

Students and instructors are expected to maintain a professional relationship characterized by courtesy and mutual respect. Moreover, it is the responsibility of the instructor to maintain an appropriate academic atmosphere in the classroom and other academic settings, and the responsibility of the student to cooperate in that endeavour. Further, the instructor is the best person to decide, in the first instance, whether such an atmosphere is present in the class. The policy and procedures governing disruptive and/or harassing behaviour by students in academic situations is available at - <http://secretariat-policies.info.yorku.ca/policies/disruptive-andor-harassing-behaviour-in-academic-situations-senate-policy/>

Hyflex classrooms

Hyflex sessions are digitally transmitted and may be recorded to support teaching and learning in the classroom. As a result, York University may collect your image, voice, name, personal views and opinions, and course work under the authority of The York University Act, 1965, and for use in related educational purposes. Students who participate in a Hyflex session are consenting to have their video or image transmitted and/or recorded. If you have concerns with such transmission or recording, sit in the designated seating area which is outside of the camera range. In addition, students who participate orally are consenting to have their voices, personal views and opinions transmitted and/or recorded. If you do not consent to the transmission or recording of your voice, please use the text-based chat function communicate during class. Students are not permitted to use any third-party software or application to record a transmitted Hyflex session. If you have any questions about the collection or use of your personal information, please contact your instructor or the Privacy Office at info.privacy@yorku.ca.